

## Managing Increased Complexity

**IURC IRP Workshop** 

September 22, 2022

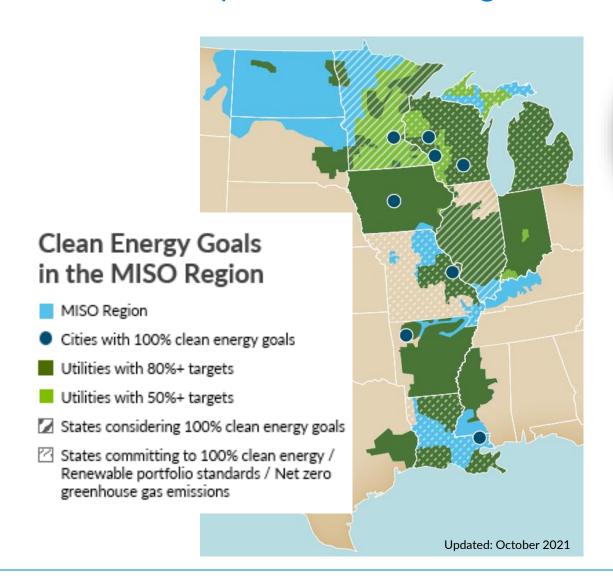
# **Executive** Summary



- Aggressive decarbonization strategies and accelerated policies are driving rapid change in our region
- As the evolution of the resource fleet accelerates, variability is increasing, and attributes required to reliably operate the system are diminishing
- Increased complexity is leading to an expanded scope and reprioritization across the elements of MISO's Reliability Imperative
- We must develop a coordinated transition plan to reliably navigate from the present to the future



## Members and States in the MISO Region continue to set ambitious deep decarbonization goals



17 utilities have energy goals greater than 80%

4 states have 100% clean energy goals

1 state
with
100% clean
energy law



## The region's energy landscape is evolving and will continue to evolve toward a more complex, less predictable future

#### **Past**

- Primarily controllable resources
- Ample reserve margins
- Predictable resource outages
- Relatively predictable weather
- Focus on providing energy in the worst peak load hour during the summer

#### Present

- Transitioning resource mix
- Tightening reserve margins
- Less predictable resource outages or unavailability
- Growing uncertainty in weather conditions
- Greater inter-dependence between utilities, states, and RTOs
- Focus on providing energy on the worst day in each season

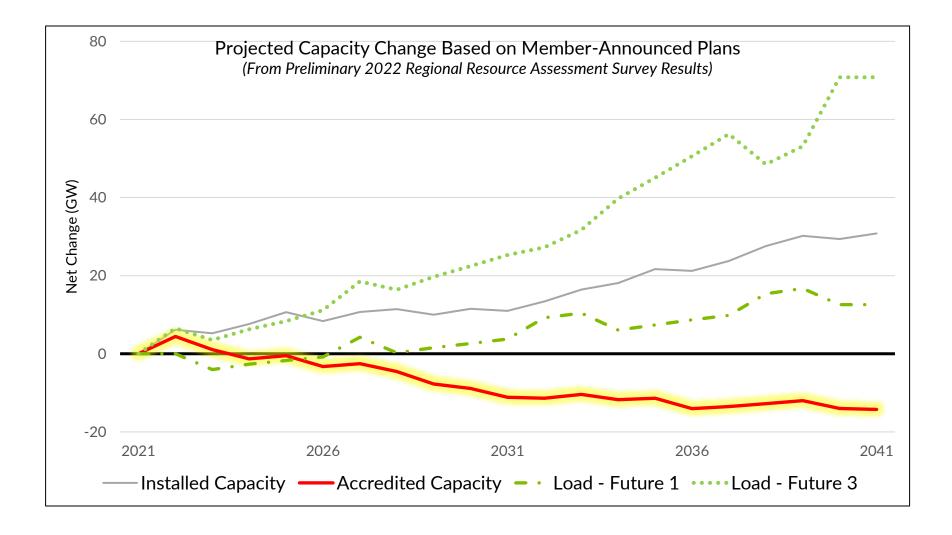
#### **Future**

- Primarily weather-dependent resources
- Risk-adjusted reserve margin requirements
- Less predictable resource outages or unavailability
- Less predictable weather
- Increasing scarcity of essential reliability attributes
- Increasing electric load
- Increasing importance of accurate load and renewable forecasting
- Focus on providing energy for the worst week in each

Policy drivers – such as EPA regulations; Environmental, Social, and Governance criteria; State Energy Policy; and the Inflation Reduction Act – are accelerating the fleet transition and associated risks



## A survey of member plans indicates accredited capacity will continue to decline, combined with increasing intermittent resources and demand





<sup>\*</sup>Future projections calculated as change from Future 1 2022 load assumption

### MISO's Reliability Imperative defines the changes necessary to reliably manage the changing resource portfolio and system risks

#### **Market Redefinition**

Aims to ensure that resources with needed capabilities and attributes will be available in the highest risk periods across the year Long Range Transmission Planning (LRTP)

Assesses future transmission needs holistically, reflecting utility/state plans for new generation; will also consider potential cost-allocation changes

### Market System Enhancements (MSE)

Transforms MISO's legacy platform into a flexible, upgradeable, and secure system that can evolve for years to come; will also integrate advanced technologies to process increasingly complex information

#### **Operations of the Future**

Focuses on the skills, processes, and technologies needed to ensure MISO Operations can effectively manage the grid into the future under increased complexity



Reliability Imperative

## FERC recently approved MISO's resource adequacy filing to better align resource requirements with system risks

#### **Seasonal Resource Adequacy Construct**

- Identifies reliability needs unique to each season and aligns resource availability with seasonal needs
- Facilitates seasonal outages or partial year operation

#### **Improved Resource Capacity Accreditation**

- Improves estimation and confidence of a resource's expected availability during future times of need in a season
- Incents owners to maximize resource availability during high-risk hours

#### Updated planned outage thresholds

• Ensures that a resource is available for the season to which it commits



### Stakeholder Readiness Engagement & Support\*

	Participate Now	September	October	November	December
Stakeholder Readiness Participation  Readiness Support Opportunities	Experience MECT     Tool changes via     MECT CCE	<ul> <li>Review RA "Tier 2" Hours for Sept 2018 through May 2022</li> <li>Review updates to BPM 011 R27 Draft</li> </ul>	<ul> <li>Review RA Hours for Sept 2019 through Aug 2022</li> <li>Review updates in BPM 011 Final</li> </ul>	• Review published SAC Value for Sept 2019 through Aug 2021 (first 2 years)	<ul> <li>Review SAC Value publication Sept</li> <li>2019 through Aug</li> <li>2022 (full 3 years)</li> </ul>
	<ul> <li>Learning         Documentation for RA &amp;         MECT Tool         changes via Help Center         Knowledge Articles     </li> </ul>	<ul><li>MECT Tool Changes Overview</li><li>MECT User Outreach</li></ul>	<ul> <li>Load Forecasting &amp; PowerGADS support</li> <li>BPM 011 Q &amp; A Session</li> <li>MECT User Outreach</li> </ul>	<ul> <li>SAC Support</li> <li>Mini Workshop</li> <li>Office Hours/Q&amp;A</li> <li>MECT Change Support</li> </ul>	<ul> <li>SAC Support</li> <li>Office Hours</li> <li>Q &amp; A</li> <li>MECT Change Support</li> </ul>
	Plan Year Participation	<ul> <li>Can submit Seasonal Net Capacity Verification Test data</li> <li>Can submit Generator Availability Data (GADS)</li> </ul>	Oct 31, 2022  Submit Seasonal Net Capacity Verification Test <b>Due</b> Submit Generator Availability Data (GADS) <b>Due</b>	Nov 1, 2022  • Submit Peak Demand forecasts and energy-for-load forecast values by LSE (Retail Choice LSEs: No Action)	Dec 15, 2022  Peak Load Contribution (PLC) submissions by EDC Due  Begin SAC Value Confirm process



### MISO continues working on reforms to align fleet capability with system needs

Recently Approved by FERC				
Resource Adequacy Construct	➤ Moves from annual to seasonal model, improves accreditation, and updates planned outage thresholds			
Ongoing Activities				
Improved Resource Accreditation	➤ Renewable and Load Modify Resources the focus in 2022			
Resource Adequacy Construct	➤ Potential improvements to the Planning Resource Auction, including reevaluation of a reliability-based demand curve			
Pricing	<ul> <li>Continued refinement of scarcity price reforms</li> <li>Improved modeling to achieve more efficient market outcomes and price signals</li> </ul>			
Resource Attributes	➤ Evaluating approaches to value resource attributes critical to reliably operating the evolving portfolio			



Maintaining reliability with the changing resource portfolio and evolving risks also increases the importance of ensuring adequate attributes

